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TO WHOM IT MAY CONCERN:

Be it known that WE, Jong-Cheol Park and Ju-Hyun Ban, having a mailing address at San 136-1, Ami-Ri, Bubal-Eub, Ichon-Shi, Kyoungki-Do 467-860 Korea, have invented an improvement in

APPARATUS AND METHOD FOR MANAGING MOBILE COMMUNICATION  
NETWORK USING TMN IN IMT-2000 SYSTEM

of which the following is a

SPECIFICATION

APPARATUS AND METHOD FOR MANAGING MOBILE COMMUNICATION  
NETWORK USING TMN IN IMT-2000 SYSTEM

Field of the Invention

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The present invention generally relates to an apparatus and method for managing a mobile communication network in an IMT (international mobile telecommunication)-2000 system by means of a TMN (telecommunication management network), and in particular, to an apparatus and a method for managing a mobile communication network in an IMT-2000 system by means of a TMN, which can manage the IMT-2000 telecommunication network in a standardized manner by means of the TMN.

Description of the Prior Art

As well known, a TMN in a general concept is a logical structure for managing a telecommunication network and service by connecting an operation system and telecommunication network components via a reference interface through which necessary management information is interchanged, and also a substructure for systemically supporting the telecommunication management.

In the meantime, the aforementioned TMN is applicable to a mobile communication network as a standardized network management method recommended by the International Telecommunication Union (ITU-T) M.3010. In this instant, the

TMN defines and manages each component comprised in the mobile communication network as a MO (MO) by analyzing the same in an object-oriented point of view.

Here, the MOs are abstract resources defined as attribute, behavior, management operation, notification, etc. Each resource has its attribute and transmits the notification as well as being subordinate to the management operation.

Further, the MOs are aggregated in separate groups having same characteristics, i.e., attribute, management operation, behavior, and notification. Each group of the management objects is referred to as a MO class.

On the other hand, the IMT-2000 system being rapidly developed at present has not employed the standardized TMN method to manage the IMT-2000 mobile communication network. In addition, a code division multiple access/personal communication service (CDMA/PCS) system, used prior to the IMT-2000 system, has not adopted the integrated management TMN method with respect to internal management information, even though the CDMA/PSC partially uses the TMN method in accessing network management systems of communication service providers. Furthermore, when applied to the above mentioned CDMA/PSC system, the TMN management method supports MOs which are modeled to a base station manager system (BSM) only, not to control stations and base stations.

Therefore, the IMT-2000 system of the prior art is unable to administrate MOs in a standardized and optimized

manner, thereby deteriorating expansibility and reusability of the MOs later.

#### Summary of the Invention

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It is, therefore, an object of the present invention to provide an apparatus and method for managing a mobile communication network in an IMT-2000 system by means of a TMN, in which an expansible, reusable, and optimized management with respect to MOs is able to be achieved by managing the IMT-2000 communication network by means of the standardized management method, TMN.

It is another object of the present invention to provide an apparatus and a method for managing a mobile communication network in an IMT-2000 system by means of a TMN, in which the TMN method is applicable not only to a base station manager (BSM) but also to control stations.

To achieve the above objects, there is provided an apparatus for managing a mobile communication network in the IMT-2000 system by means of the TMN, which manages sub blocks within a BSM, a plurality of control stations, and a plurality of base stations in the IMT-2000 system, the apparatus includes a TMN network management center for managing a state information, i.e., configuration, fault, performance, statistics, etc., of the sub blocks within the BSM, the plurality of control stations, and the plurality of base stations by means of the TMN method, and transferring a

common management information service element (CMISE) service executive instruction recommended by the International Telecommunication Union (ITU-T) to the BSM; a TMN repeater installed within the BSM and housing modeled MO classes, for  
5 collecting the state information of the sub blocks within the BSM thereof by means of the MO classes, and transferring the state information to the TMN network management center as well as updating the MO classes inside thereof so as to correspond to the CMISE service executive instruction  
10 received from the TMN network management center; a local TMN repeater installed in the plurality of control stations, and housing the modeled MO classes, for collecting the state information concerning the sub blocks within the control stations thereof by means of the MO classes and transferring  
15 the state information to the TMN network management center, while transferring the state information concerning the pertinent sub blocks transmitted from the pertinent base station among the plurality of base stations managed thereby to the TMN network management center, and then updating the  
20 MO classes inside thereof so as to correspond to the CMISE service executive instruction received from TMN repeater within the BSM; and a sub block state management section installed within each of base stations, for collecting the state information of the sub blocks within the base stations  
25 thereof and transferring the state information to the local TMN repeater within the control stations.

Also, the method for managing the mobile communication

network in the IMT-2000 system by means of the TMN when the state information is generated from the sub blocks within the base stations or the control stations, the method comprises the steps of: determining, in the local TMN repeater within  
5 each of control stations, whether or not the state information, such as configuration, fault, performance, statistics, etc., is generated from the base stations managed thereby (S1-1); determining, in the local TMN repeater within  
10 each of control stations, whether or not the state information, such as configuration, fault, performance, statistics, etc., is generated from the sub blocks within the control stations thereof, if the state information, such as configuration, fault, performance, statistics, etc. does not  
15 generate from the base stations managed thereby (S1-2); transferring, in the local TMN repeater, the state information to the TMN repeater within the BSM if the state information, such as configuration, fault, performance, statistics, etc., is generated from the sub blocks within the control stations, while the S1-1 is re-proceeded with if the  
20 state information, such as configuration, fault, performance, statistics, etc., does not generate from the sub blocks within the control stations in the S1-2 (S1-3); transferring, in the TMN repeater within the BSM, the state information received from the local TMN repeater within the pertinent  
25 control station to the TMN network management center (S1-4); and managing, in the TMN network management center, the pertinent control station by means of the TMN method after

receiving the state information of the sub blocks within the particular control station transmitted from the TMN repeater within the BSM (S1-5).

The method for managing the mobile communication network in the IMT-2000 system by means of the TMN when the CMISE service executive instruction is generated from the TMN network management center, the method comprises the steps of: transferring, in the TMN network management center, the CMISE service executive instruction to the TMN repeater within the BSM (S2-1); determining, in the TMN repeater within the BSM, whether or not the CMISE service executive instruction pertains thereto after receiving the CMISE service executive instruction from the TMN network management center (S2-2); transferring, in the TMN repeater within the BSM, the CMISE service executive instruction to the local TMN repeater within the pertinent control station, if the CMISE service executive instruction does not pertain thereto in the S2-2 (S2-3); determining, in the local TMN repeater within the pertinent control station, whether the CMISE service executive instruction is a state information collection command, a sub block reset command, a MO generation command, or a MO erase command after receiving the CMISE service executive instruction from the TMN repeater within the BSM (S2-4); collecting, in the local TMN repeater within the pertinent control station, the state information of the sub blocks within the pertinent control station thereof or of the sub blocks within the pertinent base station, and

transferring the result to the TMN network management center,  
if the CMISE service executive instruction is the state  
information collection command in the S2-4 (S2-5); and  
managing, in the TMN network management center, the pertinent  
5 control station and the pertinent base station by means of  
the TMN method after receiving the state information of the  
sub blocks within the pertinent control station or of the sub  
blocks within the pertinent base station from the local TMN  
repeater within the pertinent control station (S2-6).

#### Brief Description of the Drawings

The above and other objects, features and advantages of  
the present invention will become more apparent from the  
15 following detailed description when taken in conjunction with  
the accompanying drawings, in which:

Fig. 1 is a functional block diagram illustrating a  
configuration of an apparatus for managing a mobile  
communication network in an IMT-2000 system by means of a TMN  
20 according to a preferred embodiment of the present invention;

Fig. 2 is a diagram illustrating a modeling process of  
TMN MO classes installed within a BSM and a plurality of  
control stations in the apparatus for managing the mobile  
communication network in the IMT-2000 system by means of the  
25 TMN in Fig. 1;

Fig. 3 is a conceptual diagram illustrating a modeling  
process of the TMN MO classes installed within the BSM and



the plurality of control stations in Fig. 2;

Fig. 4A and 4B is a table illustrating a set of MO classes currently reusing a TMN reference management information model among the TMN MO classes installed in the BSM and the plurality of control stations in Fig. 2;

Fig. 4C is a table illustrating a set of MO classes currently modifying the TMN reference management information model among the TMN MO classes installed in the BSM and the plurality of control stations in Fig. 2;

Fig. 4D is a table illustrating a set of MO classes newly designating the TMN reference management information model among the TMN MO classes installed in the BSM and the plurality of control stations in Fig. 2;

Fig. 5 is a flow chart illustrating a process of managing the mobile communication network by means of the TMN when a state information is generated from sub blocks within base stations or the control stations according to the preferred embodiment of the present invention;

Fig. 6 is a flow chart illustrating a process of managing the mobile communication network by means of the TMN when a common management information service element (CMISE) service executive instruction is generated from a TMN network management center according to the preferred embodiment of the present invention;

Fig. 7 is a flow chart illustrating a detailed operation of the S2-5 in the process of managing the mobile communication network by means of the TMN when the CMISE

service executive instruction is generated from the TMN network management center in Fig. 6;

Fig. 8 is a flow chart illustrating a detailed operation of the S2-7 in the process of managing the mobile communication network by means of the TMN when the CMISE service executive instruction is generated from the TMN network management center in Fig. 6; and

Fig. 9 is a flow chart illustrating a detailed operation of the S2-13 in the process of managing the mobile communication network by means of the TMN when the CMISE service executive instruction is generated from the TMN network management center in Fig. 6.

#### Detailed Description of the Preferred Embodiment

A preferred embodiment of the present invention will be described herein below with reference to the accompanying drawings. In the following description, well-known functions or constructions are not described in detail since they would obscure the invention in unnecessary detail.

Fig. 1 is a functional block diagram illustrating an apparatus for managing a mobile communication network in an International mobile telecommunication (IMT)-2000 system by means of a telecommunication management network (TMN) according to a preferred embodiment of the present invention. The apparatus for managing the mobile communication network in the IMT-2000 system by means of the TMN comprises a TMN

network management center 100, a TMN repeater 201 installed within a base station manager (BSM) 200, a local TMN repeater 301 installed within each of control stations 300, and a sub block state management section 401 installed within each of base stations 400.

The TMN network management center 100 manages a state information, i.e., configuration, fault, performance, statistics, etc., of sub blocks 202, 302, 402 installed within the BSM 200, the plurality of control stations 300, the plurality of base stations 400 by means of the TMN method, and simultaneously transfers a common management information service element (CMISE) service executive instruction, viz, sub block state information collection command, sub block reset command, MO generation command and MO erase command, recommended by the International Telecommunication Union (ITU-T), to the TMN repeater 301 within the BSM 200.

The TMN repeater 201 installed within the BSM 200 and housing modeled MO classes as shown in Fig. 2 collects the state information of the respective sub blocks 202 within the BSM thereof by means of the MO classes and transfers the state information to the TMN network management center 100, while performing the MO class updating operation, i.e., sub block state information collection, sub block reset, MO generation, and MO erase, upon receiving the CMISE service executive instruction from the TMN network management center 100.

The local TMN repeater 301 installed within each of

control stations 300, and housing the modeled MO classes as shown in Fig. 2 collects the respective sub blocks 302 within the control stations 300 thereof by means of the MO classes and transfers the state information to the TMN network management center 100, whereas transferring the state information of the pertinent sub blocks 402 received from the pertinent base station 400 among the plurality of base stations 400 to the TMN network management center 100, and then performing the MO class updating operation, i.e., sub block state information collection, sub block reset, MO generation and MO erase so as to correspond to the CMISE service executive instruction received from the TMN repeater 201 within the BSM 200.

The sub block state management section 401 installed within each of base stations 400, collects the state information of the sub blocks 402 inside thereof and transfers the state information to the local TMN repeater 301 within the control stations 300.

It will be explained hereinafter the method for managing the mobile communication network by using the apparatus having the earlier mentioned configuration for managing the mobile communication network in the IMT-2000 system by means of the TMN according to the preferred embodiment of the present invention.

First, the modeling process concerning the TMN MO classes installed within the local TMN repeater 301 and the TMN repeater 201 will be described herein below with

reference to Fig. 2, and Fig. 3. The TMN MO class model drawn in Fig. 2 is an illustration modeled in order to manage the IMT-2000 mobile communication network by means of the TMN by HYUNDAI ELECTRONICS IND., CO., LTD.

Initially, an operator collects various types of management resources within the BSM 200, the plurality of control stations 300 and the plurality of base stations in the IMT-2000 mobile communication network, and defines the MOs by referencing them to a reference management information model currently supported by the TMN.

Here, the reference management information model currently supported by the TMN, as shown in Fig. 3, includes a MO class recommended by the general management models X.721, and M.3100, a MO class recommended by the MO models defined according to a managerial function, X.730, X.740, Q.821, and Q.822, and a MO class recommended by the management information models in a mobile communication field, GSM 12.00, 12.04, 12.20, and ANSI T1,244.

Thereafter, the operator determines, as shown in Fig 3, whether the various types of management resources within the BSM 200, the plurality of control stations 300, and the plurality of base stations 400 in the IMT-2000 system should be used by directly referencing to and reusing the reference management information model currently supported by the TMN, or by modifying the reference management information model, or by newly defining the reference management information model, and then performs the modeling for the TMN MOs

depending on the determination. The MO classes as drawn in Fig. 2 are accordingly modeled.

Just for your information, among the TMN MO class models in Fig. 2, the MO classes reusing the reference management information model currently supported by the TMN is like in Fig. 4A and B, the MO classes modifying the reference management information model currently supported by the TMN is like in Fig. 4C, and the MO classes newly defining the reference management information model currently supported by the TMN is like in Fig. 4D.

A process of managing the mobile communication network in the IMT-2000 system by means of the TMN when the state information is generated from the sub blocks within the base stations or the control stations according to the preferred embodiment of the present invention will be described herein below with reference to Fig. 5.

Fig. 5 is a flow chart illustrating the process of managing the mobile communication network in the IMT-2000 system by means of the TMN when the state information is generated from the sub blocks within the base stations or the control stations according to the preferred embodiment of the present invention.

Initially, the local TMN repeater 301 within each of base stations 300 determines whether or not the state information, i.e., configuration, fault, performance, statistics, etc., is generated from the base stations managed thereby (S1-1).

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If the state information, i.e., configuration, fault, performance, statistics, etc., does not generate from the plurality of base stations 400 managed thereby in the S1-1, the local TMN repeater 301 within each of control stations 300 determines whether or not the state information, i.e., configuration, fault, performance, statistics, etc., is generated from the sub blocks 302 within the control stations 300 thereof (S1-2). Here, the local TMN repeater 301 within each of control stations 300 uses the pertinent TMN MO classes as shown in Fig. 2 to grasp the state information concerning the sub blocks 302 inside thereof, and then transfers the TMN MO classes to a TOP MO to collect the state information as to the plurality of sub blocks 302.

If the state information, i.e., configuration, fault, performance, statistics, etc., does not is generated from the sub blocks 302 within the control stations 300 in the S1-2, the S1-1 is re-proceeded with. Alternatively, if the state information, i.e., configuration, fault, performance, statistics, etc., is generated from the sub blocks 302 within the control stations 300, the local TMN repeater 302 transfers the state information to the TMN repeater 201 within the base station manager (BSM) 200 (S1-3).

Next, the TMN repeater 201 within the BSM 200 transfers the state information received from the local TMN repeater 301 within the pertinent control station 300 to the TMN network management center 100 (S1-4).

Then, the TMN network management center 100 manages the

pertinent control station 300 by means of the TMN method upon receiving the state information concerning the sub blocks 302 within the particular control station 300 transmitted from the TMN repeater 201 within the BSM 200 (S1-5).

5 In the meanwhile, if the state information, i.e., configuration, fault, performance, statistics, etc., is generated from the plurality of base stations 400 managed thereby in the S1-1, the local TMN repeater 301 within each of control stations 300 transfers the state information as to  
10 the sub blocks within the particular base station 400 to the TMN repeater 201 within the BSM 200 (S1-6).

Thereafter, the TMN repeater 201 within the BSM 200 transfers the state information as to the sub blocks 402 within the particular base station 400 received from the  
15 local TMN repeater 301 within each of control stations 300 to the TMN network management center 100 (S1-7).

Thereafter, the TMN network management center 100 manages the pertinent control station 300 by means of the TMN method upon receiving the state information within the  
20 particular base station 400 from the TMN repeater 201 within the BSM 200 (S1-8).

In the meantime, a process of managing the mobile communication network in the IMT-2000 system by means of the TMN when the CMISE service executive instruction is generated  
25 from the TMN network management center according to the preferred embodiment of the present invention will be described herein below with reference to Fig. 6.



Fig. 6 is a flow chart illustrating the process of managing the mobile communication network in the IMT-2000 system by means of the TMN when the CMISE service executive instruction is generated from the TMN network management center according to the preferred embodiment of the present invention.

First, the TMN network management center 100 transfers the CMISE service executive instruction to the TMN repeater 201 within the BSM 200 (S2-1).

Then, the TMN repeater 201 within the BSM 200 determines whether the CMISE service executive instruction received from the TMN network management center 100 pertains thereto or to the control stations 300 (S2-2).

Here, if the CMISE service executive instruction does not pertain to the TMN repeater 201, the TMN repeater 201 within the BSM 200 transfers the CMISE service executive instruction to the local TMN repeater 301 within the pertinent control station 300 (S2-3).

Then, the local TMN repeater 301 within the pertinent control station 300 determines whether the CMISE service executive instruction received from the TMN repeater 201 within the BSM 200 is the state information collection command, the sub block reset command, the MO generation command, or the MO erase command (S2-4).

If the CMISE service executive instruction is the state information collection command in the S2-4, the local TMN repeater 301 within the pertinent control station 300

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performs the state information collection operation as to the sub blocks 302 within the pertinent control station 300 thereof or as to the sub blocks within the pertinent base station 400, and then transfers the result to the TMN network management center 100 (S2-5).

A detailed operation of the S2-5 will be described herein below with reference to Fig. 7.

Initially, the local TMN repeater 301 within the pertinent control station 300 determines whether the state information collection command pertains to the sub blocks 302 inside thereof or to the sub blocks 402 within the base stations managed thereby (S2-5-1).

If the state information command pertains to the sub blocks 302 within the control stations 300 thereof in the S2-5-1, the local TMN repeater 301 within the pertinent control station 300 collects the state information of the sub blocks 302 by means of the MO classes drawn in FIG. 2 (S2-5-2).

Thereafter, the local TMN repeater 301 within the pertinent control station 300 transfers the state information of the pertinent sub blocks 302 to the TMN network management center 100 through the TMN repeater 201 within the BSM 200 (S2-5-3).

On the other hand, if the state information collection command pertains to the sub blocks 402 within the pertinent base station 400 managed thereby, the local TMN repeater 301 within the pertinent control station 300 transfers the state information collection command to the sub block state

management section 401 within the pertinent base station 400 (S2-5-4).

Next, the sub block state management section 401 within the pertinent base station 400 collects the state information related to the pertinent sub blocks 402 upon receiving the state information collection command from the local TMN repeater 301 within the pertinent control station 300 (S2-5-5).

Thereafter, the sub block state management section 401 within the pertinent base station 400 transfers the state information of the pertinent sub blocks 402 to the local TMN repeater 301 within the control stations 300 (S2-5-6).

Thereafter, the local TMN repeater 301 within the pertinent control station 300 transfers the state information to the TMN network management center 100 through the TMN repeater 201 within the BSM 200 upon receiving the state information with respect to the sub blocks 402 within the pertinent base station 400 from the sub block state management section 401 within the pertinent base station 400 (S2-5-7).

Further, the TMN network management center 100 manages the pertinent control station 300 and the pertinent base station 400 by means of the TMN method upon receiving the state information concerning the sub blocks 302 within the pertinent control station 300 or the sub blocks 402 within the pertinent base station 400 from the local TMN repeater 301 within the pertinent control station 300 (S2-6).

In the meantime, if the CMISE service executive instruction is the sub block reset command in the S2-4, the local TMN repeater 301 within the pertinent control station 300 forcibly performs the reset operation as to the pertinent sub blocks 302 within the control stations 300 thereof or the sub blocks 402 within the pertinent base station 400, and then transfers the result of the success or failure to the TMN network management center 100 (S2-7).

A detailed operation of the S2-7 will be described herein below with reference to Fig. 8.

Initially, the local TMN repeater 301 within the pertinent control station 300 determines whether the sub block reset command pertains to the sub blocks 302 within the control stations 300 thereof or the sub blocks 402 within the base stations 400 managed thereby (S2-7-1).

Here, if the sub block reset command pertains to the sub blocks 302 within the control stations 300 thereof in the S2-7-1, the local TMN repeater 301 within the pertinent control station 300 forcibly resets the pertinent sub blocks 302 by means of the MO classes drawn in Fig. 2, and transfers the result of the success or failure to the TMN network management center 100 (S2-7-2).

On the other side, if the sub block reset command pertains to the sub blocks 402 within the pertinent base station 400 managed by the local TMN repeater 301 in the S2-7-1, the local TMN repeater 301 within the pertinent control station 300 transfers the sub block reset command to the sub

block state management section 401 within the pertinent base station 400 (S2-7-3).

Then, the sub block state management section 401 within the pertinent base station 400 forcibly resets the pertinent  
5 sub blocks 402 and transfers the result of the success or failure to the local TMN repeater 301 within the pertinent control station 300 upon receiving the sub block reset command from the local TMN repeater 301 within the pertinent control station 300 (S2-7-4).

10 Further, the local TMN repeater 301 within the pertinent control station 300 transfers the result signal of the reset success or failure received from the sub block state management section 401 within the base stations 400 to the  
15 TMN network management center 100 through the TMN repeater 201 within the BSM 200 (S2-7-5).

Furthermore, the TMN network management center 100 manages the pertinent control station 300 or the pertinent base station 400 by means of the TMN method, so as to correspond to the result signal of the reset success or  
20 failure regarding to the sub blocks 302 within the pertinent control station 300 or the sub blocks 402 within the pertinent base station 400 received from the local TMN repeater 301 within the pertinent control station 300 (S2-8).

25 If the CMISE service executive instruction, on the other hand, is the MO generation command in the S2-4, the local TMN repeater 301 within the pertinent control station 300 is generated the pertinent MOs among the modeled MOs inside

thereof, and then transfers the result signal of the success or failure to the TMN network management center 100 through the TMN repeater 201 within the BSM 200 (S2-9).

Further, the TMN network management center 100 manages  
5 the pertinent control station 300 by means of the TMN method, so as to correspond to the result signal of the success or failure regarding the MO generation received from the local TMN repeater 301 within the pertinent control station 300 (S2-10).

10 If the CMISE service executive instruction is the MO erase command in the S2-4, the local TMN repeater 301 within the pertinent control station 300 deletes the pertinent MOs among the modeled MOs inside thereof, and then transfers the result indicating the success or failure to the TMN network  
15 management center 100 through the TMN repeater 201 within the BSM 200 (S2-11).

Thereafter, the TMN network management center 100 manages the pertinent control station 300 by means of the TMN method so as to correspond to the result signal regarding the  
20 MO erase received from the local TMN repeater within the pertinent control station 300 (S2-12).

Further, if the CMISE service executive instruction pertains to the BSM 200 in the S2-2, the TMN repeater 201 within the BSM performs the sub block state information  
25 collection, the sub block reset, the MO generation or the MO erase, so as to correspond to the CIMISE service executive instruction, and then transfers the result to the TMN network

management center 100 (S2-13).

A detailed operation of the S2-13 will be described herein below with reference to FIG. 9.

First, the TMN repeater 201 within the BSM 200  
5 determines whether the CMISE service executive instruction is the state information collection command, the sub block reset command, the MO generation command, or the MO erase command (S2-13-1).

Here, if the CMISE service executive instruction is the  
10 state information collection command in the S2-13-1, the TMN repeater 201 within the BSM 200 collects the state information of the pertinent sub blocks 202 by means of the MO classes drawn in FIG. 2 (S2-13-2).

After that, the TMN repeater 201 within the BSM 200  
15 transfers the state information of the collected pertinent sub blocks 202 to the TMN network management center 100 (S2-13-3).

In the meantime, if the CMISE service executive  
instruction is the sub block reset command in the S2-13-2,  
20 the TMN repeater 201 within the BSM 200 forcibly resets the pertinent sub blocks 202 by means of the MO classes drawn in FIG. 2, and then transfers the result signal of the success or failure to the TMN network management center 100 (S2-13-4).

On the other side, if the CMISE service executive  
25 instruction is the MO generation command in the S2-13-2, the TMN repeater 201 within the BSM 200 is generated the pertinent sub blocks 202 among the MO classes drawn in the

FIG. 2, and then transfers the result of the success or failure to the TMN network management center 100 (S2-13-5).

Further, if the CMISE service executive instruction is the MO erase command in the S2-13-2, the TMN repeater 201 within the BSM 200 deletes the pertinent sub blocks 202 among the MO classes drawn in FIG. 2, and then transfers the result of the success or failure to the TMN network management center 100 (S2-13-6).

Then, the TMN network management center 100 manages the BSM 200 by means of the TMN method, so as to correspond to the result signal with regard to the sub block state information collection operation, the sub block reset operation, the MO generation operation, or the MO erase operation received from the TMN repeater 201 within the BSM 200 (S2-14).

As above stated, the apparatus and the method for managing the mobile communication network in the IMT-2000 system by means of the TMN according to the present invention, have advantages of enhancing expansibility and reusability of the MOs, and achieving the optimization of the system management since the IMT-2000 communication network can be managed in the standardized manner by means of the TMN method, and of efficiently managing the IMT-2000 communication network since the TMN method pertains not only to the BSM but also to the control stations.

While the invention has been shown and described with reference to certain preferred embodiments thereof, it will



be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.